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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/667,758	09/22/2003	Shinji Hamada	F-7968	1383

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EXAMINER

RUTHKOSKY, MARK

ART UNIT PAPER NUMBER

1745

DATE MAILED: 06/30/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

## Office Action Summary

Application No.

10/667,758

Applicant(s)

HAMADA ET AL.

Examiner

Mark Ruthkosky

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

### Status

- 1) ☒ Responsive to communication(s) filed on 03 January 2005.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

### Disposition of Claims

- 4) ☒ Claim(s) 1 and 3-5 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1 and 4 is/are rejected.
- 7) ☒ Claim(s) 3 and 5 is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

### Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
  - ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.

### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)<br>Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                                   | 5) <input type="checkbox"/> Notice of Informal Patent Application (PTO-152)             |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)<br>Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____  |

## DETAILED ACTION

### *Claim Rejections - 35 USC § 103*

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1, 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yamane et al. (US 6,335,116) in view of Linden, D.R. (Handbook of Batteries.)

Yamane et al. (US 6,335,116) teaches a battery pack comprising a plurality of battery modules arranged in parallel, each of said battery modules comprising a plurality of sealed rechargeable batteries arranged in a row and integrally connected in series said sealed rechargeable battery having a metal case. The enclosure includes a pair of holding brackets for holding both ends of said battery modules in a direction perpendicular to the parallel direction of said battery modules. Figure 1 teaches a tubular cover surrounding the periphery of the plurality of battery modules. Other figures teach a variety of shapes for the tubular cover (figs. 1-10.) A coolant supply device is shown in figures 1-10. The individual rechargeable batteries include round or square prismatic shaped cases. The square shaped batteries include features, such as the corners, that promote cooling (col. 6, lines 10-35.) The battery pack casing includes turbulence altering protrusions in order to promote airflow turbulence.

The reference does not teach that the rechargeable batteries have a metal case. Linden, D.R. (Handbook of Batteries) teaches a battery case may be made of metal, such as aluminum,

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and should provide effective dissipation of heat to limit the temperature rise during battery use (page 5.11.) It would be obvious to one of ordinary skill in the art at the time the invention was made to use a metal casing for the batteries of Yamane et al. (US 6,335,116) in order to prevent reactivity of the cell components with the exterior environment and to allow for effective dissipation of heat as metals are thermally conductive and efficiently dissipate heat. The artisan would have found the claimed invention to be obvious in light of the teachings of the references.

Claims 1, 2 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kouzu et al. (US 6,211,646) in view of Linden, D.R. (Handbook of Batteries.)

Kouzu et al. (US 6,211,646) teaches a battery pack comprising a plurality of battery modules arranged in parallel, each of said battery modules comprising a plurality of sealed rechargeable batteries arranged in a row and integrally connected in series said sealed rechargeable battery having a metal case. The enclosure includes a pair of holding brackets for holding both ends of said battery modules in a direction perpendicular to the parallel direction of said battery modules. Figure 3 teaches a tubular cover surrounding the periphery of the plurality of battery modules. Other figures teach a variety of shapes for the tubular cover (figs. 2-10, 17 and the corresponding text.) A coolant supply device is shown in figure 17 (text in columns 16-17.) The individual rechargeable batteries include flat portions and round sleeves attached (figure 17) that promote cooling. The battery pack casing includes turbulence altering protrusions in order to promote airflow turbulence.

The reference does not teach that the rechargeable batteries have a metal case. Linden, D.R. (Handbook of Batteries) teaches a battery case may be made of metal, such as aluminum,

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and should provide effective dissipation of heat to limit the temperature rise during battery use (page 5.11.) It would be obvious to one of ordinary skill in the art at the time the invention was made to use a metal casing for the batteries of Kouzu et al. (US 6,211,646) in order to prevent reactivity of the cell components with the exterior environment and to allow for effective dissipation of heat as metals are thermally conductive and efficiently dissipate heat. The artisan would have found the claimed invention to be obvious in light of the teachings of the references.

***Allowable Subject Matter***

Claims 3 and 5 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter: Claim 3 includes a pair of holding brackets that are each provided with a ring-shaped protrusive wall into which said ends of said battery modules are fitted, said ring-shaped protrusive walls slide in both ends of said tubular cover, a slit is formed in said holding brackets in such a position as to correspond to said cooling space between the battery modules, and a fan is provided in the outer surface of at least one of said holding brackets.

The prior art does not teach a battery pack including a plurality of battery modules arranged in parallel, each of said battery modules comprising a plurality of sealed rechargeable batteries arranged in a row and integrally connected in series said sealed rechargeable battery having a metal case; and a pair of holding brackets for holding both ends of said battery modules in a direction perpendicular to the parallel direction of said battery modules, wherein the holding

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brackets that are each provided with a ring-shaped protrusive wall into which said ends of said battery modules are fitted, said ring-shaped protrusive walls slide in both ends of said tubular cover, a slit is formed in said holding brackets in such a position as to correspond to said cooling space between the battery modules, and a fan is provided in the outer surface of at least one of said holding brackets. As claim 5 depends from claim 3, this claim is allowable by the same reasoning.

The most pertinent prior art has been presented. In addition to Yamane et al., as applied, Kouzu et al. (US 6,211,646) teaches an end plate and a bracket system used in a battery unit wherein ring-shaped side walls are included in brackets to form the casing. The reference does not teach that the ring-shaped protrusive walls slide in both ends of said tubular cover, a slit is formed in said holding brackets in such a position as to correspond to said cooling space between the battery modules, and a fan is provided in the outer surface of at least one of said holding brackets. Hamada et al. (US 6,555,264) teaches a battery module with a plurality of cells connected in series, and with protrusions that allow for airflow through the cell to cool the batteries. The reference does not teach that the ring-shaped protrusive walls slide in both ends of said tubular cover, a slit is formed in said holding brackets in such a position as to correspond to said cooling space between the battery modules, and a fan is provided in the outer surface of at least one of said holding brackets. As the prior art does not teach or suggest the invention as claimed, the claims are allowed.

***Response to Arguments***

Applicant's arguments filed 4/7/2006 have been fully considered but they are not persuasive.

Applicant argues that the Yamane reference does not teach a pair of holding brackets for holding both ends of said battery modules in a direction perpendicular to the parallel direction of said battery modules. This argument is not persuasive. The upper and lower walls of the pack form holding brackets for holding both ends of said battery modules in a direction perpendicular to the parallel direction of said battery modules (figure 1.) The reference teaches that the individual battery modules are arranged in rows at given spaces (claims.)

Applicant further argues that the Yamane and Kouzu references do not teach a tubular cover for surrounding the periphery of the batteries that are disposed with a cooling space provided therebetween. This argument is not persuasive. Figures 1-10 of Yamane teach a tubular cover surrounding the periphery of the plurality of battery modules. Air is propelled through the tubular casing to cool the individual battery modules. Cooling spaces are provided between the individual battery modules. Kouzu et al. (US 6,211,646) teaches a battery pack comprising a plurality of battery modules arranged in parallel, each of said battery modules comprising a plurality of sealed rechargeable batteries arranged in a row and integrally connected in series said sealed rechargeable battery having a case. The enclosure includes a pair of holding brackets for holding both ends of said battery modules in a direction perpendicular to the parallel direction of said battery modules. Figures 2-3 teach a tubular cover surrounding the periphery of the plurality of battery modules. Other figures teach a variety of shapes for the tubular cover (figs. 2-10, 17 and the corresponding text.) Air is propelled through the tubular

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casing to cool the individual battery modules. Cooling spaces are provided between the individual battery modules.

For these reasons, the arguments are not persuasive and the claims stand rejected for reasons of record.

### ***Conclusion***

Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the date of this final action.

### ***Examiner Correspondence***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Mark Ruthkosky whose telephone number is 571-272-1291. The examiner can normally be reached on FLEX schedule (generally, Monday-Thursday from 9:00-



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6:30.) If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Patrick Ryan can be reached at 571-272-1292. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free.)

Mark Ruthkosky

Primary Patent Examiner

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6-21-2006